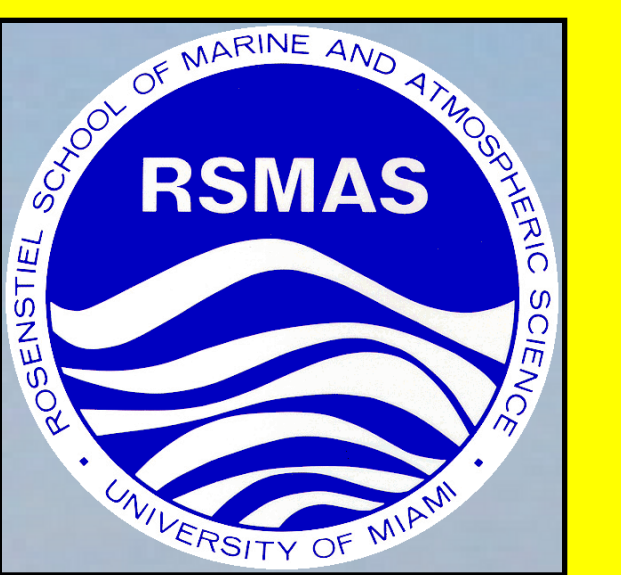


Florida Bay Shallow Water Surface Drifter



David S. Bitterman, Ryan. H. Smith, W. Douglas Wilson
NOAA's Atlantic Oceanographic and Meteorological Laboratory, Miami, FL

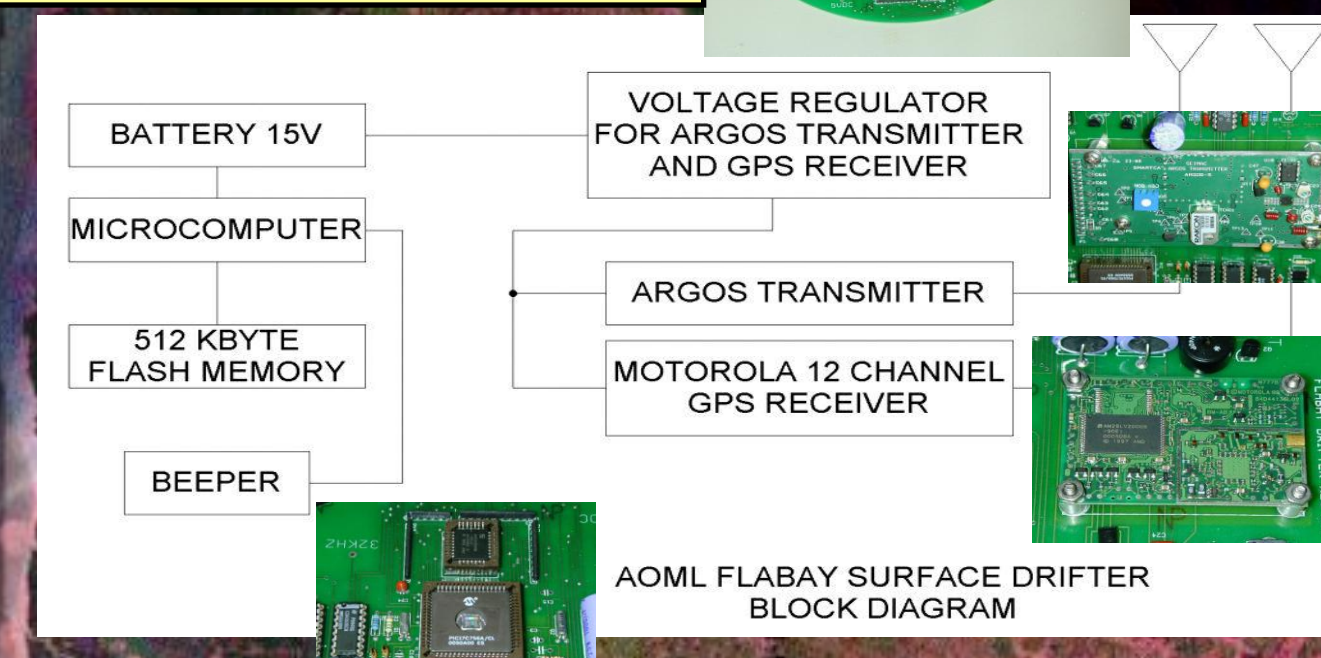
Nelson Melo
U. of Miami, Cooperative Institute for Marine and Atmospheric Studies, Miami, FL
Thomas N. Lee
U. of Miami, Rosenstiel School of Marine and Atmospheric Science, Miami, FL

The Drifter

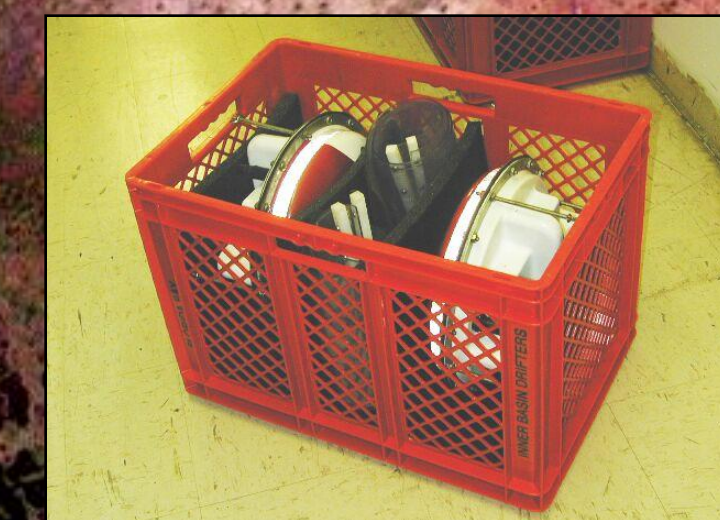
In response to NOAA/COP funded research needs for high resolution Lagrangian analysis of Florida Bay interior basin flow fields, a shallow water drift buoy was designed and developed by AOML and RSMAS in Miami, Florida.

The Electronic

Block Diagram



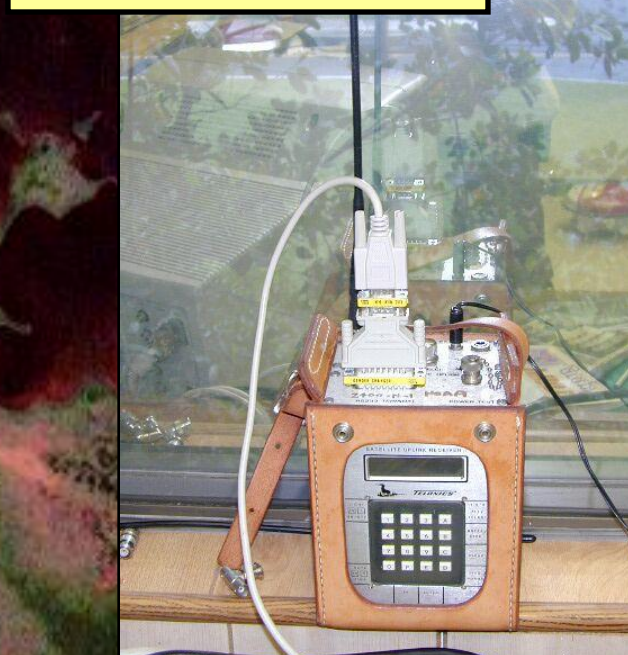
Drifter



Drogue



Receiver



Drifter Specifications

1. Power: Alkaline D cell battery pack 15VDC
2. Operating lifetime approximately 30 days
3. GPS receiver: Motorola ONCORE 12 channels
4. Sample rate: GPS position every 4 minutes to 1 hour
5. Onboard memory capacity: 16384 positions (date, time, lat, lon, pdop, status)
6. Setup, checkout and data download thru serial port
7. Transmits three most recent positions to shore via SERVICE ARGOS satellites.
8. Small surface profile to minimize wind drag
9. Weight approximately 5.5kg (13 pounds)

Drifter Sea Tests

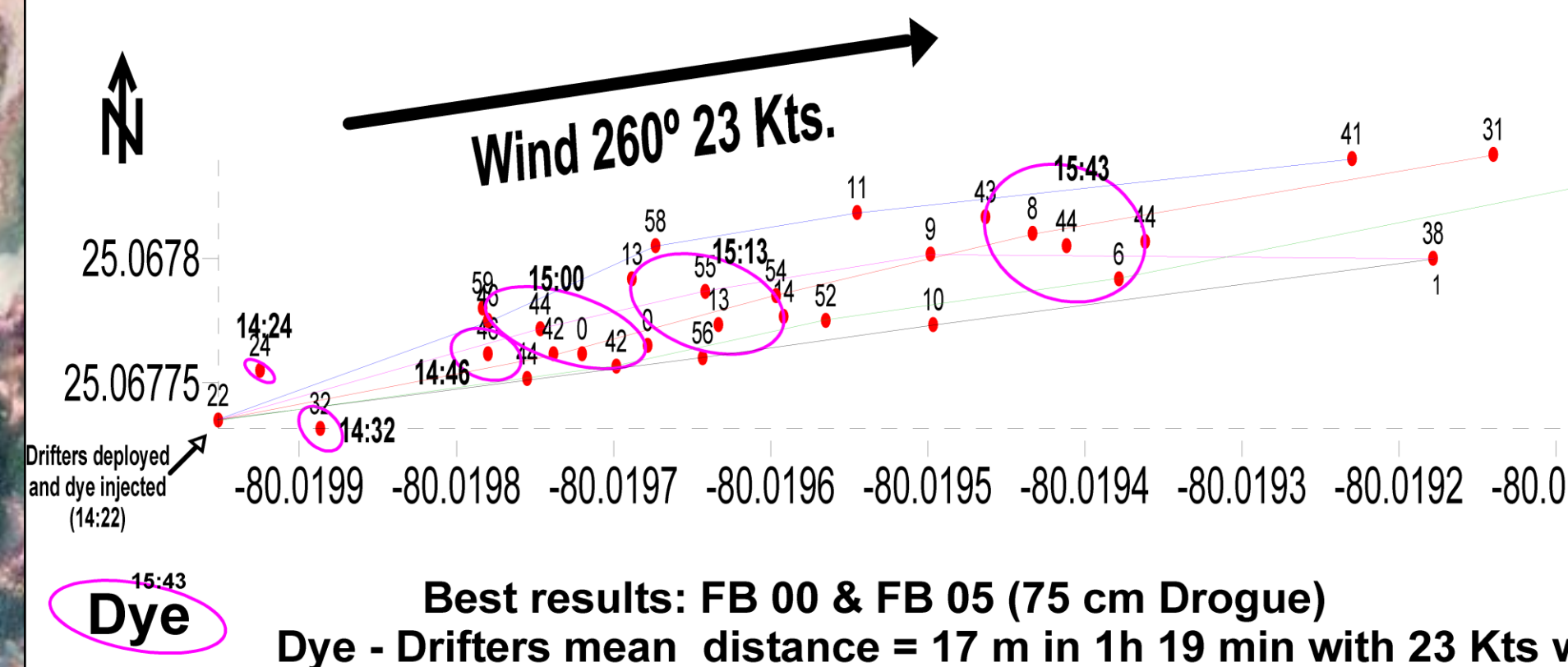
Tree "sea tests" were done to check the coupling of the drifter with the water. Drifters with different drogue lengths, and co-located patches of colored dye (Rhodamine WT), were deployed in Biscayne Bay in a 10 and 23 knot wind. All of the drifters moved in the same direction as the dye patch. The drifters with the 75 cm drogues exhibited the best coupling with the water. The average difference between the drifter speeds and the dye patch speed was less than 1 cm/sec.



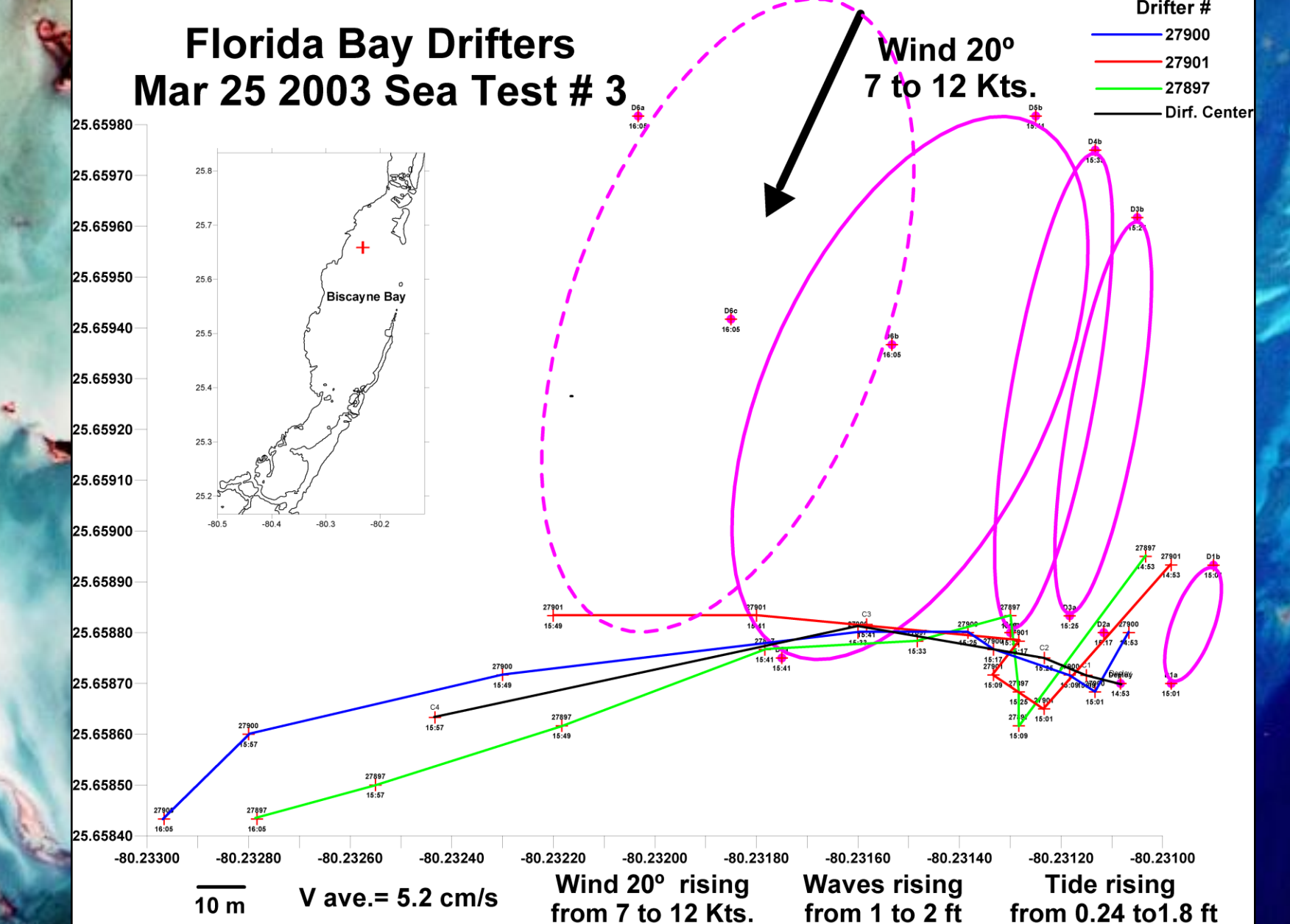
Florida Bay Drifters Sea Test # 2

Biscayne Bay
03/21/2001
14:22 to 15:44 (local time)
High tide @ 06:40
Wind 260° 23 Kts.

Drifter #	Drogue Length	Area: Above Surface / Below Surface	Drogue Type
FB 00	75 cm	1/11.5	Fixed Drogue
FB 01	50 cm	1/5.5	Fixed Drogue
FB 02	25 cm	1/2	Fixed Drogue
FB 03	0 cm	1/0.8	No Drogue
FB 05	75 cm	1/11.5	Fixed Drogue



Florida Bay Drifters Mar 25 2003 Sea Test # 3



Results

To Date, 8 cruises using the shallow water surface drifters have been conducted in Florida Bay, with a total of 68 individual drifters deployed and 98.5 % drifters and data recovery.

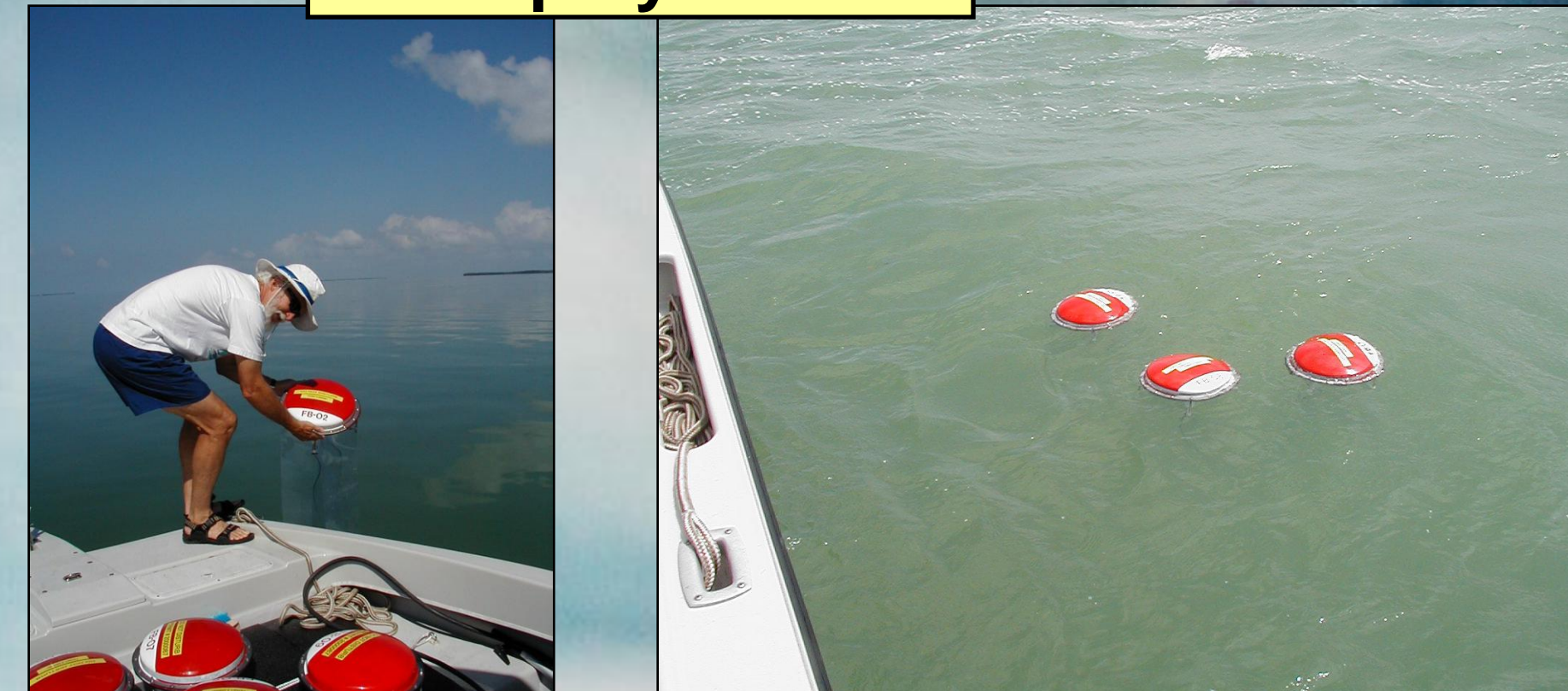
In the Bay the drifters generally move in the direction of the wind and display circulation patterns influenced by the basin configuration and topography.

Drifter Operation

Drifters Check



Deployment



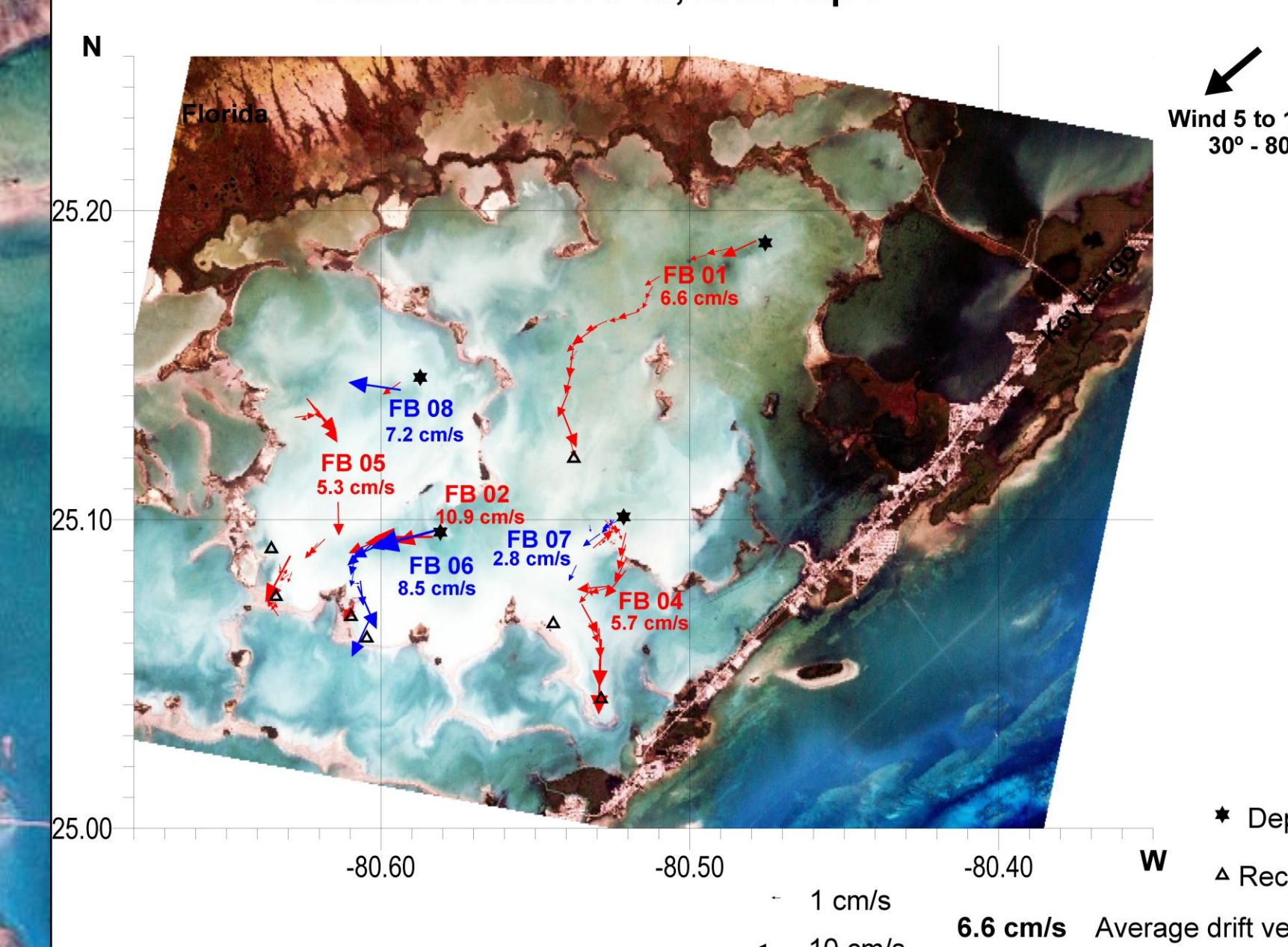
Tracking



Recovery



Florida Bay NE Basin - Wet Season 2002 Drifters October 8-10, 2002 Trip 3



Florida Bay NE Basin - Wet Season 2002 Drifters October 23-25, 2002 Trip 4

